

## REMARKS

The Official Action of December 19, 2002 has been carefully considered and reconsideration of the application as amended is respectfully requested.

Claim 1 has been amended more clearly to distinguish over the cited art (see discussion below). The amendment to claim 1 renders moot the Examiner's rejection under 35 USC 112, second paragraph, appearing at the top of page 2 of the Official Action.

Claims 2, 3, 5 and 6 have been amended to bring them into correspondence with the claim from which they depend (claim 1). To explain, formula (I) as recited in claim 1 is:  $R-[(EO)\underline{n}-(PO)\underline{m}]k-\underline{T}$ . In the case where T represents an OH group, this formula can also be written as:  $R-\underline{\overset{O}{O}}-[(EO)\underline{m}-(PO)\underline{n}]k-\underline{H}$  <sup>or OH</sup> as would be clear to those of skill in the art. Original claims 2, 3, 5 and 6 recited T as a hydrogen atom in accordance with this latter (equivalent) formula. The claims have now been amended in accordance with what one of skill in the art would have understood was meant from the application as filed, including the fact that claims 2, 3, 5 and 6 depend from claim 1. Accordingly, it is respectfully submitted that the amendment to the dependent claims does not introduce new matter. The specification has also been amended to assure correspondence with the claims.

Claims 1 and 11 were rejected as allegedly being unpatentable over Ise et al. Claim 11 has been canceled whereby to render moot the rejection of this claim. Claim

1 as amended no longer recites compounds of formula (I) wherein R is a cyclic group. Claim 1 as amended patentably distinguishes over the reference, which teaches the necessity of including an aromatic (benzyl) ether in the ink compositions described therein and thus teaches away from the compounds of formula (I) now claimed having a straight or branched alkyl group as R.

Claims 1, 2, 5-10, and 13-21 were rejected under 35 USC 103(a) as allegedly being unpatentable over Nagai et al. Applicants respectfully traverse this rejection.

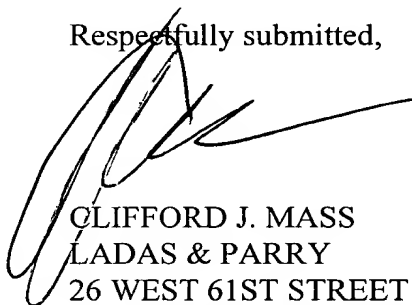
The Examiner considers that one of the surfactants optionally added to the recording liquid described in Nagai et al (the surfactant represented by formula 5) falls with the claimed compound represented by formula (I). Applicants respectfully disagree insofar as the teaching of the reference is so ambiguous as to what constitutes the surfactant represented by formula 5 as to make it impossible to determine whether or not it meets the claim recitation. In this respect, Applicants respectfully call the Examiner's attention to Example 3 in columns 19 and 20 of the reference wherein the described yellow, magenta, cyan and black liquids each comprises the surfactant of formula (5) with " $R^6=C_3H_7$ ". It is respectfully noted that Example 3 (as well as the other examples) is described as comprising an exemplary embodiment of the invention described in Nagai et al (see Nagai et al at column 15, lines 57-61).

If one of skill in the art were to attempt to reconcile the teaching in Example 3 with the teaching in Nagai et al at column 8, line 36 ("wherein  $R^6$  is a carbon chain having 6 to 14 carbon atoms"), he or she would realize that it is impossible to

determine from the reference what is the correct number of carbon atoms that (according to the reference) should be in the carbon chain represented by  $R^6$  in the surfactant of formula 5. Since the carbon chain in the exemplary embodiment of the surfactant in Example 3 ( $R^6=C_3H_7$ ) falls outside of the claimed range and the teachings of the reference are thus ambiguous as to a critical claim limitation, it is respectfully submitted that the reference cannot be considered to set forth even a case of prima facie obviousness for the invention as claimed.

In view of the above, all rejections and objections of record are believed to have been successfully traversed and the application is believed to be in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

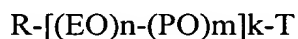
Respectfully submitted,



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CLAIMS

1. An ink for ink jet recording, comprising at least a water-soluble colorant, a water-soluble organic solvent, water, and a mixture of two or more compounds represented by formula (I):



wherein

EO represents an ethyleneoxy group;

PO represents a propyleneoxy group;

T represents an OH group or  $SO_3M$  wherein M represents a hydrogen atom, an alkali metal, an inorganic base, or an organic amine;

m and n are each an integer;

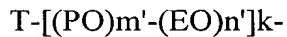
k is a natural number of not less than 1; and

R represents

a  $C_aH_{2a-k-1}$  group where "a" represents natural number of 4 to 10, or

an  $Ra-C_aH_{2a-k-2}$  group where "a" represents natural number of 4 to 10 and  $Ra$

represents a group represented by the following formula:



wherein

EO, PO, T and k each are as defined above; and

$n'$  and  $m'$  are respectively n and m,

EO and PO being arranged, regardless of order in the parentheses, randomly or as blocks joined together,

n or n + n' being 1 to 10 with m or m + m' being 0 to 5 when n and m and n' and m' are expressed in terms of the average value for the mixture of compounds represented by formula (I) contained in the ink. ~~or~~

~~a group represented by the following formula:~~



~~Wherein K represents a saturated or unsaturated aromatic ring having 4 to 15 carbon atoms or a saturated or unsaturated aliphatic ring having 4 to 15 carbon atoms, M represents a bond or an alkylene group having 1 to 12 carbon atoms, and O represents an oxygen atom.~~

2. The ink according to claim 1, wherein the compounds, represented by formula (I), constituting the mixture each are such that R represents a  $\text{C}_a\text{H}_{2a-k-1}$  group and T represents an OH group ~~a hydrogen atom~~.

3. The ink according to claim 1, wherein the compounds, represented by formula (I), constituting the mixture each are such that R represents an  $\text{Ra-C}_a\text{H}_{2a-k-2}$  group and T represents ~~a hydrogen atom~~ an OH group.

5. The ink according to claim 1, wherein the compounds, represented by formula (I), constituting the mixture each are such that R represents a  $\text{C}_a\text{H}_{2a-k-1}$  group, EO represents  $-\text{CH}_2\text{CH}_2\text{O}-$ , PO represents  $-\text{CH}(\text{CH}_3)-\text{CH}_2\text{O}-$ , and T represents ~~a hydrogen atom~~ an OH group, R, EO, PO, and T being attached to one another in that order to represent formula  $\text{R}-(\text{EO})_n-(\text{PO})_m-\text{T}$ .

6. The ink according to claim 1, wherein the mixture of compounds represented by formula (I) is composed of:

a compound represented by formula (I) wherein R represents a  $\text{C}_a\text{H}_{2a-k-1}$  group

and T represents ~~a hydrogen atom~~ an OH group, R, EO, PO, and T being attached to one another in that order to represent formula  $R-(EO)_n-(PO)_m-T$ ; and

a compound represented by formula (I) wherein R represents a  $C_aH_{2a-k-1}$  group and T represents ~~a hydrogen atom~~ an OH group, R, EO, PO, and T being attached to one another in that order to represent formula  $R-(PO)_m-(EO)_n-T$ .

#### SPECIFICATION

Page 7, Paragraph 4 rewrite as follows:

According to a first preferred embodiment of the present invention, the compounds, represented by formula (I), constituting the mixture each are such that R represents a  $C_aH_{2a-k-1}$  group and T represents an OH group ~~a hydrogen atom~~.

Page 7, Paragraph 5

According to a second preferred embodiment of the present invention, the compounds, represented by formula (I), constituting the mixture each are such that R represents an  $Ra-C_aH_{2a-k-2}$  group and T represents an OH group ~~a hydrogen atom~~.

Page 8, second paragraph, rewrite as follows:

According to a fifth preferred embodiment of the present invention, the mixture of compounds represented by formula (I) is composed of:

a compound represented by formula (I) wherein R represents a  $C_aH_{2a-k-1}$  group and T represents an OH group ~~a hydrogen atom~~, R, EO, PO, and T being attached to one another in that order to represent formula  $R-(EO)_n-(PO)_m-T$ ; and

a compound represented by formula (I) wherein R represents a  $C_aH_{2a-k-1}$  group and T represents an OH group ~~a hydrogen atom~~, R, EO, PO, and T being attached to one another in that order to represent formula  $R-(PO)_m-(EO)_n-T$ .